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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/820,057

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Katsuhito Nishimura

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EXAMINER

CRAWFORD, JACINTA M

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/820,057	Applicant(s) NISHIMURA, KATSUHIITO	
	Examiner JACINTA CRAWFORD	Art Unit 2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 April 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Numaoka (US 2001/0038386) in view of Kaji (US 6,501,568) and Minoru (JP 2000-202162).

As to claim 1, Numaoka discloses a storage medium for storing an image generating program which causes a computer to generate a display image used for displaying a plurality of objects placed in a two-dimensional or three-dimensional virtual space ([0004], lines 13-21; Figure 1), wherein the image generating program causes the computer to perform: database storing means for storing data of the objects (Figure 1, element 12); position storing means for storing positions of the objects in the virtual space (Figure 1, elements 6 and 7); barycenter determination means for determining a barycenter of the objects

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based on the data and the positions of the objects (Figure 1, elements 5 and 8); and display image generating means for generating a display image (Figure 1; [0020] thru [0027]).

Numaoka discloses a 3-D object space database for storing data about the object to be acquired by the virtual camera to be used to produce a 3-D resultant image to be displayed [0027]. Numaoka differs from the invention defined in claim 1 in that Numaoka do not disclose “weights” of an object. Numaoka also does not expressly disclose the barycenter lies in approximately a center of the display image.

Kaji discloses objects having an “attention degree” which is determined based on numerous factors such as distance from camera, size, etc. (column 4, line 10 thru column 5, line 3). Therefore, “weight” is interpreted as “attention degree.” Kaji disclose a storing means for storing weights (column 3, lines 25-28).

It would be have been obvious to one of ordinary skill in the art at the time of the invention to modify Numaoka’s 3-D game system with Kaji's “weights” of objects in a 3-D virtual space to determine a level of focus on a particular object so that the particular object can be displayed correctly within the 3-D space among other objects to create a more realistic and balanced scene.

Minoru et al. disclose the barycenter lies in approximately a center of the display image (Drawing 6: Minoru terms “barycenter” as “center-of-gravity point”).

It is obvious that the barycenter lies in the center of the image since by definition “barycenter” is the point between two objects where they balance each other. Also, barycenter relates to the center of gravity.

As to claim 2, Numaoka modified with Kaji and Minoru disclose the storage medium wherein an object to be displayed preferentially has a heavier weight than other objects (Kaji, the object having a heavier “weight” is considered the target object; Figure 2 shows Object B with the highest attention degree; see also Figure 3 where Object B is closer than Objects A and C).

As to claim 3, Numaoka modified with Kaji and Minoru disclose the storage medium wherein a heaviest weight value is assigned to a player character which is operable by a player (Kaji, column 3, lines 10-21 notes player to operate game; column 4, lines 10 thru column 5, line 3 note how weights are assigned to objects; it would be obvious that a main player character would have a higher weight in comparison to other objects or players since the focus

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on a screen is more on that player).

As to claim 4, Numaoka modified with Kaji and Minoru disclose the storage medium wherein a level of importance is previously provided for each object (Kaji, column 5, lines 14-18; NOTE: the “attention degree” is also considered “level of importance” since the attention degree is based on a number of factors noted in column 4, line 10 thru column 5, line 3), and the image generating program further causes the computer to function as weight associating means for assigning a heavier weight to the object for which a higher level of importance is provided compared to other objects (Kaji, Figure 2 shows Object B with the highest attention degree; Figure 3 shows Object B is closer than Objects A and C).

As to claim 5, Numaoka modified with Kaji and Minoru disclose the storage medium wherein a weight equal to or greater than a sum of weights of objects other than the player character is dynamically assigned to the player character (Kaji, Figure 2 notes the “attention degree” is greater than the weights of the other Objects).

As to claim 6, Numaoka modified with Kaji and Minoru disclose the storage medium wherein, in the determining a barycenter (Numaoka, Figure 1, elements 5 and 8), the image generating program causes the computer to

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determine a barycenter of objects placed within a predetermined area, which is a portion of the virtual space (Numaoka, Figure 2; Kaji, Figure 4).

As to claim 7, Numaoka modified with Kaji and Minoru disclose the storage medium wherein if a barycenter determined by the determining a barycenter lies outside a predetermined allowable limit which is centered around specific one object of the plurality of objects, the image generating program causes the computer, in the generating a display image, to generate a display image in which an intersection point of a line segment connecting the barycenter and the specific one object and an outer edge of the allowable limit lies in approximately a center of the display image (Kaji, Figure 3; column 6, lines 1-15).

As to claim 8, Numaoka modified with Kaji and Minoru disclose the storage medium wherein the virtual space is a three-dimensional virtual space (Kaji, column 1, lines 31-32; Numaoka, [0004], line 13-15), and the image generating program causes the computer, as the display image generating means, to generate a display image using a virtual camera whose sight point is the barycenter (Numaoka, [0023] thru [0027]; Minoru, Drawing 6).

As to claim 9, Numaoka modified with Kaji and Minoru disclose the storage medium wherein a weight of specific one object of the plurality of objects

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changes in accordance with a position of the virtual camera (Kaji, column 4, line 10 thru column 5, line 3; Numaoka, Figure 2; Minoru, [0040] thru [0043]).

As to claim 10, Numaoka modified with Kaji and Minoru disclose the storage medium wherein the closer a distance between the virtual camera and the sight point becomes, the heavier a weight of the specific one object becomes (Kaji, column 5, line 26 thru column 6, line 29).

As to claim 11, Numaoka modified with Kaji and Minoru disclose the storage medium wherein the virtual space is a three-dimensional space (Kaji, column 1, lines 31-32; Numaoka, [0004], line 13-15), and the image generating program causes the computer, as the display image generating means, to generate a display image by bringing the sight point of a virtual camera closer to the barycenter determined by the barycenter determination means at a constant rate (Numaoka, [0023] thru [0027]; Kaji, column 6, lines 15).

As to claim 12, Numaoka discloses a game device for generating a display image used for displaying a plurality of objects placed in a two-dimensional or three-dimensional virtual space, comprising: database storing means for storing data of the objects (Figure 1, element 12); position storing means for storing positions of the objects in the virtual space (Figure 1, elements 6 and 7); barycenter determination means for determining a barycenter of the objects

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based on the data and the positions of the objects (Figure 1, elements 5 and 8); and display image generating means for generating a display image in which the barycenter lies in approximately a center of the display image (Figure 1; [0020] thru [0027]).

Numaoka discloses a 3-D object space database for storing data about the object to be acquired by the virtual camera to be used to produce a 3-D resultant image to be displayed [0027]. Numaoka differs from the invention defined in claim 12 in that Numaoka do not disclose “weights” of an object. Numaoka also does not expressly disclose the barycenter lies in approximately a center of the display image.

Kaji discloses objects having an “attention degree” which is determined based on numerous factors such as distance from camera, size, etc. (column 4, line 10 thru column 5, line 3). Therefore, “weight” is interpreted as “attention degree.” Kaji disclose a storing means for storing weights (column 3, lines 25-28).

It would be have been obvious to one of ordinary skill in the art at the time of the invention to modify Numaoka’s 3-D game system with Kaji's “weights” of objects in a 3-D virtual space to determine a level of focus on a particular

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object so that the particular object can be displayed correctly within the 3-D space among other objects to create a more realistic and balanced scene.

Minoru et al. disclose the barycenter lies in approximately a center of the display image (Drawing 6: Minoru terms “barycenter” as “center-of-gravity point”).

It is obvious that the barycenter lies in the center of the image since by definition “barycenter” is the point between two objects where they balance each other. Also, barycenter relates to the center of gravity.

Claims 13-15 are similar in scope to claim 1.

Claim 16 is similar in scope to claim 3, and is therefore rejected under similar rationale.

Response to Arguments

3. Applicant's arguments filed April 20, 2009 have been fully considered but they are not persuasive. Applicants argue on pages 8-12 regarding independent claim 1 that the prior art cited, “Numaoka/Kaji/Minoru fail to teach or suggest “determining a barycenter of the objects based on the

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weighted value and the positions of the objects; and generating a display image in which the barycenter lies in approximately a center of the display image.”

Numaoka discloses in Figure 1 a barycenter calculator, 5, which calculates the barycenter of a change between two consecutive frames, which is output from the frame differential detector, 4. Numaoka also discloses that the calculation from the barycenter calculator is saved to the barycenter coordinates memory. This denotes that the data provided by the barycenter calculator includes positions because coordinates are used for showing a position or location of an object in space. The Examiner notes that Numaoka alone does not teach all of the limitations of claim 1 and relies on Kuji for expressly disclosing weights of objects, although by definition, barycenter refers to the center of mass of objects. Kuji discloses objects within a game being played by a player or user, where some objects are given a higher “attention degree” than others. This is so the three-dimensional images are more natural and match a user’s perception. Kuji discloses how some objects can be given a higher “weight value” than others in rules (1) thru (8) of column 4, lines 13-31. Kuji discloses a calculation process where higher “weight values” may be given based on an object’s position, e.g. center of a display, depth on display.

4. Applicants also argue on page 10 that the prior art, Kuji, does not assign “weight” to a player character. However, the Examiner renders this obvious since a main player character would have a higher weight in comparison to other objects or players since the focus on a screen is more on that player.

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Also, Kuji discloses that the “object” can include objects such as enemies, which can be rendered as characters.

5. Applicants argue on page 11 that “Numaoka fails to teach of even remotely suggest looking at the positions of individual objects and calculating a barycenter based on the positions of the individual objects at each frame.”

However, Numaoka discloses taking into account individual objects. Numaoka notes before displaying a three-dimensional image on a display, three-dimensional objects are projected on the two-dimensional screen *as seen in its view*.

6. Applicants argue on page 12 that “Numaoka/Kaji/Minoru provides no teaching or suggestion that the display image is created such that the barycenter lies in approximately a center of the display image.” Minoru discloses in Figure 6 a center point as a representation point and further discloses the display image at [0048].

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the

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advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JACINTA CRAWFORD whose telephone number is (571)270-1539. The examiner can normally be reached on M-F 8:00a.m. - 5:00p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kee Tung can be reached on (571) 272-7794. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jacinta Crawford/
Examiner, Art Unit 2628

/Hau H Nguyen/
Primary Examiner, Art Unit 2628